

BYZANTINE MEDICINE: TRADITION AND EMPIRICISM

OWSEI TEMKIN

I

ACCORDING to the textbooks, Byzantine medicine extends from A.D. 330 to A.D. 1453. But this long period is not uniform in itself. It must be divided into two phases: one which extends to 642, the year of the Arab entry into Alexandria, the other including the subsequent period when Constantinople formed the center of medical practice.¹

The Alexandrian period, seen in the perspective of antiquity, was a period of considerable formative power. It did not merely continue what had been done and known before. Out of the works of Galen it created a medical system that was to endure for a thousand years. It was still heathen, even though some of its teachers became Christians.² Medicine of the period of Constantinople was Christian. It accepted rather than shaped a tradition.

However, as Meyerhof has shown in detail, the school of Alexandria survived the Arabic conquest till about A.D. 700.³ Syrians and Arabs were more direct heirs of the last phase of Alexandrian medicine than was Constantinople.⁴ Early Arab medicine lies like a wedge between our knowledge of medicine in Alexandria and Constantinople. It gives us much valuable information but it does not always reveal when and where the events it relates took place.

Byzantine medicine thus represents the formation as well as the continuation of a tradition, broken and unbroken. It also represents the cultivation of practices of which some have a clear origin while that of others is obscure.

We shall first discuss the formation of the Galenic system in Alexandria. We shall then turn to the obscure interlude before later Constantinopolitan medicine emerges more clearly. Finally, we shall select a few aspects of tradition and empiricism apparent during this later period.⁵

II

When Galen died in Rome around A.D. 200, he left a reputation as physician and philosopher, and a body of writings which would have filled considerably more than the twenty-two volumes of the Kühn edition that have come down to us in Greek. These works were partly logical and philosophical, and it is here

¹ Max Neuburger, *Geschichte der Medizin*, II (Stuttgart, 1911), 97. The articles by Iwan Bloch on "Griechische Aerzte des dritten und vierten (nachchristlichen) Jahrhunderts," and "Byzantinische Medizin" in Neuburger-Pagel, *Handbuch der Medizin*, I (Jena, 1902), 481-491 and 492-568 still form an important basis for any survey of Byzantine medicine. For a recent discussion of many aspects of Byzantine medicine, see *XII^e Congrès international d' histoire de la médecine, Athènes-Cos, 4-14 Septembre 1960*, 2 vols. (Athens, 1960).

² Owsei Temkin, "Geschichte des Hippokratismus im ausgehenden Altertum," *Kyklos* (Leipzig), 4 (1932), 1-80.

³ Max Meyerhof, *Von Alexandrien nach Bagdad* (Berlin, 1930) Sitzungsberichte der Preussischen Akademie der Wissenschaften, Phil.-Hist. Klasse, 23 (1930).

⁴ It must, moreover, not be overlooked that from 616 to about 628 Alexandria was under Sassanian rule.

⁵ The following is no more than an attempt to put together some selected topics, on which I am still working, in a picture that undoubtedly will need many corrections and elaborations.

that the greatest losses have been suffered. Others belonged to anatomy and physiology, if we may stretch modern terms; still others dealt with a great variety of medical topics, including *materia medica*. Finally, there was a series of commentaries on several works attributed to Hippocrates, by then considered the greatest of all physicians. In these commentaries, and also in others of his books, Galen tried to prove that Hippocrates was to medicine what Plato was to philosophy, and that he, Galen, was the true interpreter and follower of Hippocrates.⁶

Galen thus bridged more than five hundred years of development. A victory for Galen meant, in the first place, a defeat for those medical sects which were not Rationalist, i.e. which did not base medicine on anatomical dissection, physiological experiment, and speculation about causes both hidden and evident. Galen debated with the sects of the Empiricists and Methodists, and a book "On Sects" which he himself intended for beginners became one of the elementary texts in Alexandria. "For it is useful to learn what is good and to reject what is bad. We reject the empirical and methodical art, and we take to ourselves the rational art which is pure and useful,"⁷ writes a commentator of the early sixth century with regard to this work.⁸

As a sect, the Methodists never were strong in the Greek East. Of Empiricists we hear little after A.D. 200; their successors, the Empirics of the Middle Ages, were a different breed: The Empiricists had been learned men, philosophical defenders of observation as the only source of knowledge.⁹ Empirics were practitioners who had little but experience on which to draw.

Galen's victory meant the unification of medicine, a unification which was to last till the days of Paracelsus in the sixteenth century. Since it recognized anatomy, physiology, and pathology as sciences basic to medicine, it drew the outlines of medicine as we still know them today.

This was achieved by the second half of the fourth century and is reflected in the works of Oribasius, the friend of the Emperor Julian the Apostate. Oribasius had compiled a compendium "from the writings of Galen only."¹⁰ Then followed Oribasius' *Collections*, a large encyclopedia of medical knowledge that aimed at presenting each subject in the words of the author who had best treated it. It was a reference work, as were the encyclopedias of Alexander of Tralles and Aetius of Amida in the sixth century, and it served the added purpose of protection against the repetitious treatment of the same matters,¹¹ already felt to be a nuisance in the fourth century. Among the authors cited by

⁶ For this and the following, see Temkin, "Geschichte des Hippokratismus."

⁷ Cod. Ambrosianus, G 108 inf., fol. 28v: *Utile est enim discere quae bona sunt et quae mala sunt rennuere. Rennuimus empiricam et methodicam, suscepimus logicam mundam et utilem artem.*

⁸ On the dating and provenience of the text, see Owsei Temkin, "Studies on Late Alexandrian Medicine: I. Alexandrian Commentaries on Galen's *De sectis ad introducendos*," *Bulletin of the History of Medicine*, 3 (1935), 408.

⁹ Karl Deichgräber, *Die griechische Empirikerschule* (Berlin, 1930), and Ludwig Edelstein, "Empirie und Skepsis in der griechischen Empirikerschule," *Quellen und Studien zur Geschichte der Naturwissenschaften und der Medizin*, III, 4 (1933), 45-53.

¹⁰ Oribasius, *Collectionum medicarum reliquiae* I, 1. ed. Ioannes Raeder (Leipzig-Berlin, 1928) (*Corpus Medicorum Graecorum* VI, 1, 1), 4, 3-6.

¹¹ *Ibid.*, 4, 12: περιττὸν δὲ νομίσας εἶναι καὶ παντελῶς εὔηθες τὸ ἔγγραφειν τὰ αὐτὰ πολλάκις.

Oribasius, Galen holds the first rank and is excerpted more frequently than anyone else.

There are a number of facts that explain the preference given to Galen. He was the last of the original medical scientists; he linked medicine and philosophy; he admired Plato, yet in method he followed Aristotle. Like Ptolemy¹² he had thrown his net very far; apart from technical works on the surgical disciplines, he offered information on all medical subjects from anatomy to uroscopy and drug lore. Above all, he presented a medical theory that penetrated all his works and united them, and was at the same time able to incorporate a wealth of anatomical, clinical, and pharmacological detail.

Galen was very much aware of his eminence. Lacking any discernible trace of humor, he took himself *au grand sérieux*, did not shun controversy, or hesitate to make his superiority very clear. Oribasius who, incidentally, was a countryman of Galen's, admired him because, as he says, in following the principles and opinions of Hippocrates, Galen made use of the most exact methods and definitions.¹³ In his animal anatomy, Galen's exactness as a dissector has rarely been surpassed. In his pharmacology, he tried to introduce an exact grading of the potency of drugs which would fit a similar exactness in gauging the nature of diseases, so that a cold disease could be counteracted exactly by a hot remedy. This, in particular, would appear as Hippocratic since the principle of *contraria contrariis curantur* was considered a truly Hippocratic maxim.¹⁴

In the nineteenth century, when Galen was generally held to have been the main obstacle to medical progress during the Middle Ages, his greatness was denied, and what had once been seen as virtue was now viewed as tiresome self-glorification and senseless verbiage. This gave rise to Wilamowitz von Moellendorff's notorious phrase "Seichbeutel Galen."¹⁵ Yet, unjust as is this description of Galen as a windbag, it nevertheless points to weaknesses in Galen's writings; weaknesses, that is, if viewed by a professor who had to teach Galenic medicine. Galen's writings were too numerous to be read in their entirety, his style was prolix, and his underlying medical theory, though consistent in its essential features, was expressed unevenly. Since many of his writings served particular purposes, they accentuated different things at different times.¹⁶ The late Alexandrian iatrosophists, i.e. the teachers of medicine, thus took it upon themselves to make a selection of Galenic works to be read in the schools, to comment upon them, and to summarize them. They fulfilled a similar task for the works of Hippocrates.¹⁷ The theoretical study of medicine leaned heavily on these two authorities, just as the study of philosophy leaned on Aristotle and

¹² Festugière, *La révélation d'Hermès Trismégiste*, I (Paris, 1950), 2 ff.

¹³ Oribasius, *op. cit.*, 4, 17.

¹⁴ For references, see Temkin, "Geschichte des Hippokratismus," 38.

¹⁵ U. v. Wilamowitz-Moellendorff, *Isylos von Epidauros* (Berlin, 1886) 122, note 12: "... der unerträgliche seichbeutel Galen."

¹⁶ Owsei Temkin, "Galen's Pneumatology," *Gesnerus* (Aarau) 8 (1951), 180-189, esp. 189.

¹⁷ For details, see Meyerhof, *Von Alexandrien nach Bagdad* and Temkin, "Geschichte des Hippokratismus," esp. 51-80.

Plato. The late Neoplatonic teachers began with Porphyry and Aristotle; the iatrosophists, similarly, began with Galen.

Before turning to the late school of Alexandria, we must, however, take a somewhat broader view of medical activities from the middle of the fourth century to the beginning of the seventh, or, to express it in authors, from Oribasius to Paul of Aegina.

As the works of the great encyclopedists, especially Oribasius and Aetius of Amida, show, the ascendancy of Galen did not imply a disregard of all other authors before him, nor the suppression of all originality after him. Even heretics were utilized if they had been prominent in some field, as Soranus had been in gynecology. Side by side with Galen, Dioscorides was studied and excerpted as the great pharmacologist. A beautifully illustrated edition of his *materia medica* was prepared for the princess Juliana Anicia in Constantinople around A.D. 500. Jacob Psychrestus practiced in Constantinople in the fifth century. Himself a pagan, he was credited by pagan sources¹⁸ with almost divine attributes. So extraordinary are his diagnostic and therapeutic abilities said to have been, that he was generally named "Savior," like the healing god Asclepius.¹⁹ His nickname Psychrestus was taken to indicate a therapeutic bias in favor of a liquifying diet, "because he saw that most people were very busy and covetous of money and always lived a life full of grief and worry."²⁰

Jacob Psychrestus received a salary from the city, which probably means that he served as a public physician.²¹ General as this institution had been since the fifth century B.C., the duties connected with it are still imperfectly known. Jacob's biographer relates that he did not exact money from his patients; rather, he tried to persuade the rich among them to aid the poor.²² This tends to corroborate the view that public physicians were not forbidden to collect fees from the poor, and that the institution was not a form of socialized medicine.²³

Medical practice of the period followed the older tradition of treating diseases by regimen and drugs. A number of prescriptions associated with the real or pretended names of their authors appear in this late literature, the admixture of superstitious remedies increasing steadily. Even Alexander of Tralles admits amulets on the ground that a good physician must do everything the art orders him to do.²⁴ Alexander is credited with having introduced colchicum into the treatment of gout,²⁵ a disease that was prevalent in Byzantium.

¹⁸ The main source for Jacob Psychrestus is Damascius' Life of the Philosopher Isidoros which Rudolf Asmus, *Das Leben des Philosophen Isidoros von Damaskios aus Damaskos* (Leipzig 1911), reconstructed in German translation, chiefly from the Suda and Photius.

¹⁹ *Ibid.*, 73, 14-16.

²⁰ *Alexander von Tralles*, ed. Th. Puschmann, II (Vienna, 1879), 163.

²¹ Asmus, *Das Leben des Philosophen Isidoros*, 74.

²² *Ibid.*

²³ Owsei Temkin, "Changing Concepts of the Relation of Medicine to Society in Early History," in *Social Medicine, Its Derivations and Objectives*, ed. Iago Galdston (New York, 1949), 3-12, esp. 11, note 11.

²⁴ Alexander von Tralles, ed. Theodor Puschmann, I (Vienna, 1878), 571-573.

²⁵ Fielding H. Garrison, *An Introduction to the History of Medicine*, 4th ed. (Philadelphia, 1929), 124. Alexander, however, mentions prescriptions against gout containing colchicum (hermodactylum), which he credits to "some persons" (vol. 2, 561). In particular, he refers to Jacob Psychrestus' receipts against gout containing the *hermodactylon* medicine (vol. 2, 565, 571).

tium. It figures among the diseases for which the Code of Justinian contains a special ruling: "The disease of podagra does not represent an excuse from [the performance of] personal duties. If, however, you say you are so much afflicted by the disease of the feet as not to be able to serve your own interests, go to the governor of the province; if he establishes the truthfulness of your excuses he shall not suffer you to be called for physical duties."²⁶ As late as the thirteenth century at least, two monographs were devoted to this disease, one by Demetrius Pepagomenus, the personal physician of Michael Palaeologus.²⁷ There were excellent descriptions of other diseases too, e.g. diphtheria.

If we are to believe Fulgentius, surgery must have been practiced with particular devotion in Alexandria around A.D. 500. He has Calliope complain that she would have found peace in that city had it not been for "Galen's family, which is more cruel than wars and which is so ingrafted into almost all of Alexandria's narrow streets that one can count more little surgical butcher stalls than dwelling places."²⁸ Ample experience was to be gained in Alexandria. Paul of Aegina mentions a prescription which he picked up there.²⁹ Sergius of Rēsh'ainā, the translator of medical and philosophical works into Syriac, visited Alexandria in the early sixth century. Constantinople had its visitors too. The Frankish physician Roevalis cured a boy by operating "as he had once seen the physicians act in the city of Constantinople."³⁰

No doubt good practical training in medicine could be obtained.

But theory was taught in the schools from books. The late Alexandrians were Galenists; they followed the man, yet did not try to imitate him. They interpreted his anatomical works, perhaps they even dissected, as we shall hear later. But they did not try to use dissection and physiological experiment as tools for research.

According to Eunapius, around A.D. 350 Zenon of Cyprus established a famous school.³¹ He was trained in both medical rhetoric and medical practice, while his famous pupils followed him in one or the other direction or in both. Among his pupils was Oribasius, as well as Magnus of Nisibis who excelled more in rhetoric than in practice. By medicla rhetoric, Eunapius means dialectic skill. Thus Magnus proved that patients who had been cured by other doctors were still sick.³² "At Alexandria a public school was especially assigned for him to teach in, and everyone sailed thither and attended his lectures, either merely in order to see and admire him or to enjoy the advantages of his teaching."³³

²⁶ *Codex Iustinianus* X, 51, 3, ed. P. Krueger (Berlin, 1895), 422.

²⁷ Bloch, "Byzantinische Medizin," 565. The other author was Ioannes Chumnus.

²⁸ Quoted (in Latin) by F. Schemmel, "Die Hochschule von Alexandria im IV. und V. Jahrhundert P. Chr. N.," *Neue Jahrbücher für das klassische Altertum* (1909), 448-457, see esp. 441.

²⁹ Paulus Aegineta IV, 49,2; ed. I. L. Heiberg, I (Leipzig-Berlin, 1921) 371, 26. (*Corpus Medicorum Graecorum*, IX, 1).

³⁰ Gregory of Tours, *Historia Francorum*, X, 15, ed. W. Arndt and Br. Krusch (Hannover, 1885), 426 (Mon. Germ. Hist., *Script. rev. Meroving.*, I): ... *sicut quondam apud urbem Constantinopolitanam medicos agere conspexeram*

³¹ Eunapius, *Lives of the Sophists*, with an English translation by W. C. Wright (Loeb Classical Library, 1922), 528ff.

³² *Ibid.*, 530.

³³ *Ibid.*, 533.

Eunapius' portrait of Zenon and his pupils supplies us with some important facts. There was no separation between medicine and surgery, but there was a potential separation between dialectic and practical ability. A man could be a philosopher, orator, and physician, all at the same time, as we know of Asclepiodotus that he studied philosophy with Proclus, and medicine with Jacob Psychrestus.³⁴ There also was a *diadoche*, a succession in teaching.³⁵ The public school given to Magnus possibly means that he was provided with a lecture room, a sort of provision the state would make for doctors.³⁶

All this becomes pertinent when we approach the men who taught during or after the late fifth century. Their names appear as authors of commentaries in Greek, Latin, or Arabic; two lists, one of four, the other of seven names, are given by the Arabic historians of medicine.³⁷ Some of the names, such as Gesius, Damascius, and John the Grammarian, are well known in philosophical literature. The titles ascribed to these men vary: philosopher, iatrosophist, physician, or a combination of these.³⁸

I shall resist the temptation to speculate on the date and identity of the iatrosophists, particularly the four mentioned in an Arabic "History of Physicians," which Professor Franz Rosenthal edited in 1954.³⁹ Instead, let us see what the late Alexandrians are supposed to have done and how far this is borne out by works at our disposal. "Those four Alexandrians were the ones who commented on the books of Galen, made synopses of them, abridged them, and gave brief résumés of some books and discussed others at length."⁴⁰ Elsewhere we read that one of the four⁴¹ acted as editor and was the head of what seems to have been a group.

A Latin manuscript at Milan contains commentaries on four Galenic works: On the Sects for Beginners, the Medical Art, On the Pulse for Beginners, and the Therapeutics for Glaucon.⁴² Their titles and the order of their arrangement agree well with what Hunain ibn Ishāq, the famous Nestorian translator of the ninth century, tells about them in his essay on the Syriac and Arabic translations of Galen. "The teachers, who in antiquity used to teach medicine in Alexandria, made a book in five parts out of four Galenic treatises [the four

³⁴ Asmus, *Das Leben des Philosophen Isidoros*, 86 and 76.

³⁵ Eunapius, *Lives of the Sophists*, 530: οἱ διάδοχοι Ζήνωνος.

³⁶ *The Scriptores historiae Augustae* (Severus Alexander XLIV, 4), translated by F. Magie, II (Loeb Classical Library, 1924), 267.

³⁷ For details see Meyerhof, *Von Alexandrien nach Bagdad*, 9ff. and Temkin, "Geschichte des Hippokratismus," 51ff.

³⁸ See the titles of the commentaries published by F. R. Dietz, *Apollonii Citiensis, Stephani, Palladii, Theophili, Meletii, Damascii, Ioannis, Aliorum Scholia in Hippocratem et Galenum*, 2 vols. (Königsberg, 1834).

³⁹ These four are Anqilāūs and the three mentioned *supra*. Franz Rosenthal "Ishāq B. Hunayn's *Ta'rih Al-Atībbā'*," *Oriens*, 7 (1954), 69.

⁴⁰ *Ibid.*, 79.

⁴¹ I.e. Anqilāūs, see Meyerhof, *Von Alexandrien nach Bagdad*, 10-12, who cites both Ibn al-Qifti and Ibn Abi Uṣaibī'ah.

⁴² On the manuscript, Cod. Ambros. G 108 inf., see *supra*, note 8, and Augusto Beccaria, *I codici di medicina del periodo presalernitano* (Rome, 1956), 288-293, also *idem*, "Sulle tracce di un antico canone latino di Ippocrate e di Galeno. I," *Italia medioevale e umanistica*, 2 (1959), 1-56.

books of the Milan manuscript] and named it 'for beginners.'"⁴³ The first of these books, *On the Sects for Beginners*, usually contained a lengthy introduction to medicine comparable to Porphyry's philosophical *Eisagoge*. That philosophy really served as the pattern is attested by the following passage from the Milan manuscript: "Indeed, we must read in an orderly fashion, as the divine Plotinus, the philosopher, also states."⁴⁴ Most commentaries on Galenic as well as Hippocratic books discuss the place which each particular book should hold in the study of Galenic or Hippocratic works.

Synopses (or summaries) of Galenic works exist in Arabic in a number of manuscripts.⁴⁵ I have been studying the summaries contained in a manuscript of the British Museum.⁴⁶ Again the four books for beginners come first, then follow others whose titles I shall not enumerate here. The synopses, as far as I have studied them, are so colorless and devoid of personality, and are so governed by the principle of schematic divisions and subdivisions that their Greek origin seemed unproved to me, in spite of the appearance of Hunain's name as the translator. I was, therefore, glad to come across a passage corroborating to some minor degree the Greek provenience of the original. Referring to structural abnormalities of parts of the body, the text states: "This, for instance, happened to," then follows a word which looks like *Būsīt*⁴⁷ *e*s, a meaningless form.⁴⁸ A marginal note offers the explanation: "*Būsīt*⁴⁷ *e*s, this is a man. Homer the poet mentions that he was in the army; his chest and his back were misshapen," etc.⁴⁸ This is an obvious reference to Thersites. Illustration by means of a Homeric pseudo-hero could be expected from a Greek author, while the Arabic reader needed an explanation.

The monotony and colorless schematism which make the reading of these summaries so tiresome a task also tinge the commentaries. Only occasionally do we obtain a glimpse of the school room. An aged commentator of the Hippocratic Aphorisms, in interpreting the changes which the stature of the body underwent with age, supposedly told his pupils: "If you wish to understand exactly what Hippocrates said, take me as an example for your argument: 'for this one was large in his youth and good-looking, but in his old age he became bent for the reason stated.'"⁴⁹

⁴³ G. Bergsträsser, Ḥunain ibn Ishāq, *Ueber die syrischen und arabischen Galen-Uebersetzungen* (Leipzig, 1925), p. 5 of the Arabic text. The Milan MS contains only the first book of Galen's *Methodus medendi ad Glauconem*.

⁴⁴ Cod. Ambros. G 108 inf., fol. 28^r: *Debemus enim secundum ordinem legere, quemadmodum et divinus Plotinus philosophus dicit.*

⁴⁵ H. Ritter and R. Walzer, "Arabische Übersetzungen griechischer Ärzte in Stambuler Bibliotheken," *Sitzungsberichte d. Preuss. Akad. d. Wissensch.*, Phil.-Hist. Klasse, 26 (1934), 801-846, also R. Walzer, "Codex Princetonianus arabicus 1075," *Bull. Hist. Med.*, 28 (1954), 550-552.

⁴⁶ Brit. Mus. Cod. add. 23407.

⁴⁷ Fol. 27^r.

⁴⁸ *Ibid.*, *Būsīt* huwa rajulun ḍakara 'ūmīrus al-shā'iru 'annahu kāna fi-l-'askari wakāna 'ahdaba fi sadrihi waṣahrī etc.

⁴⁹ Dietz, *op. cit.*, vol. 2, 343, note 4 (from Stephanus' commentary on Hippocrates, Aphorism II, 54): ἐνταῦθα γενόμενος δὲ τρισευδαίμων σοφιστής Γέσιος, καὶ τὸν ἀφορισμὸν τοῦτον ἔξηγούμενος, ἀστείως φερόμενος, τοῖς ἀκροσταῖς ἐλεγεν· εἰ βούλεσθε ἀκριβῶσαι τὸ ὑφ' Ἱπποκράτους λεγόμενον, ἐμὲ αὐτὸν ὑπόθεσιν τοῦ λόγου ποιήσασθε. οὗτος γάρ ἐν νεότητι μακρὸς ἦν καὶ εὐπρεπῆς τοῖς ὅρῶσιν, ἐν δὲ γήρᾳ κεκυφώς ἐγένετο κατὰ τὴν εἰρημένην αἰτίαν.

Such light touches are rare. What prevails is a dry didactic tone such as is found also in the late commentaries on Aristotle. In the manuscripts, commentaries as well as compendia often go under different names, though the differences in content may be a matter of variants only.⁵⁰ The impression gained is that of an established opinion which the choice of lecturer does not materially affect. It is very difficult to find out whether the lecturer is a Christian or a pagan. A science had been created that was neutral to religion and could, therefore, be passed on to Christians, Mohammedans, and Jews alike.

III

In the main we have so far relied on Byzantine material, supplemented by oriental sources. Now, however, we must turn to more questionable matters where it is hard to tell whether tradition continues or a different path branches off.

We shall begin with a detail. We repeatedly find brief but very exact outlines of the constitutive parts of medicine. On a few pages, they present the whole Galenic system of medicine in a remarkably concentrated form. I quote a few lines from the Milan manuscript: "We shall now say into how many parts medicine is divided. Into two: theory and practice. Theory is divided into three: physiology, etiology, semeiotics. Physiology is divided into six: elements, temperaments, humors, very solid parts of the body, faculties, operations."⁵¹

If we compare this with the corresponding lines of an Alexandrian summary, extant in Arabic translation,⁵² and again with a commentary by Palladius of the sixth century and one by Theophilus,⁵³ probably of the seventh century, we shall find almost literal agreement. If, however, we turn to a distinctly Arabic product, the so-called *Questions (masā'il)* of Hunain ibn Ishāq, we note both agreement and disagreement. "Into how many parts is medicine divided? Into two parts.—Which are they? Theory and Practice.—And into how many parts is theory divided? Into three parts.—And which are they? The theory concerning the natural things from which results the science of disease by the deterioration (*bizawāli*) of these natural things from their conditions, and the theory concerning the causes, and the theory concerning the signs.—How many are the natural things? Seven things.—And what are they? The elements, the temperaments, the humors, the parts of the body, the faculties, the actions, *and the spirits.*"⁵⁴

⁵⁰ In this connection, see Marcel Richard, 'Απὸ φωνῆς, *Byzantium*, 20 (1950), 191–222.

⁵¹ Cod. Ambros. G 108 inf. fol. 26^r: *Dicamus nunc in quot partes dividitur medicina? In duas, Theoreticon et practicon. Theoreticon dividitur in tres, Fisiologicon, ethiologicon, simioticon. Fisiologicon dividitur in sex: In elementis, in temperantia naturae, in umoribus, in firmissimis corporis locis, in virtutibus, in operationibus.*

⁵² Brit. Mus. Cod. add. 23407, fol. 2^v.

⁵³ Dietz, *op. cit.*, vol. 2, 246. For Palladius, see Giovanni Baffioni, "Scolii inediti di Palladio al *De sectis di Galeno*," *Bulletino del comitato per la preparazione della edizione nazionale dei classici Greci e Latini*, N. S. fasc. VI (Rome, Accademia Nazionale dei Lincei, 1958), 69 and 75. Palladius calls medicine a τέχνη μικτή because it comprises theory and practice.

⁵⁴ Oxford, Bodleian Library, Cod. Marsh 16, fol. 56^v. The italics are, of course, mine. While reading proof, I find that the commentary on Galen's *De sectis* printed in the Latin edition of Galen's works by Rusticus Placentinus, vol. 1 (Pavia, 1515), fols. 6^r–12^v, and ascribed to Joannes Alexandrinus,

The subdivision of Physiology has increased from six to seven, the spirits having been added. Surely this is a small matter? Galen and his Alexandrian followers also frequently mentioned the spirits, the *pneumata*. But there is disagreement. "How many are the spirits? Three.—And which are they? The natural spirit, the vital spirit, and the psychic spirit. And the natural spirit is sent from the liver and runs in the veins into the whole body and serves the natural force. And the vital spirit is sent from the heart" etc.⁵⁵

Hunain ibn Ishāq definitely enumerates three *pneumata*, among them the natural *pneuma* in the liver and veins. But Galen had practically disregarded the natural *pneuma*.⁵⁶ Such late Constantinopolitan authors as John Actuarius who lived in the fourteenth century speak of it as a matter of course, and it occurs in Greek texts which are perhaps considerably earlier. But just how late we may go, I do not know.⁵⁷ To this example we may add another of the canon of sixteen Galenic books that Arabic authors connect with John the Grammarian, i.e. John Philoponus, and a corresponding canon of twelve Hippocratic works.⁵⁸ I pass over the details of this complicated question; suffice it to say that so far, to the best of my knowledge, no Byzantine source, Alexandrian or Constantinopolitan, is known to refer to this canon of exactly sixteen books, although their summaries are extant in what seem to be Arabic translations from the Greek.

These examples may serve to illustrate a number of possibilities regarding the transmission of tradition from Alexandria to Constantinople. We must take into account the possibility that the Arabic tradition incorporated developments which took place in Alexandria but did not reach Constantinople, or, if they reached that city, did not receive the attention which the Arabs gave them. Because Byzantine medicine always had been Greek medicine, its dependence on Alexandria in later times was less than was that of the Orient,

also divides physiology into these seven parts. See Baffioni, *op. cit.*, 75. I am at present unable to ascertain whether the "spirits" are subdivided as by Hunain ibn Ishāq. On the commentary, see Temkin, "Studies on Late Alexandrian Medicine," and on its author *idem*, "Geschichte des Hippokratismus," 67 ff.

⁵⁵ *Ibid.*, fol. 60v.

⁵⁶ Temkin, "Galen's Pneumatology."

⁵⁷ G. Helmreich, *Handschriftliche Studien zu Meletius* (Berlin, 1918) (Abhandlungen der königl. Preussischen Akademie der Wissenschaften, Jahrgang 1918, Philosophisch-historische Klasse, Nr. 6), publishes from a Munich manuscript Anecdota which he thinks suggestive of Meletius' authorship (p. 41). Here we read (p. 44): Φλέψ ἔστι σῶμα νευρῶδες, ἀγγεῖον αἷματος καὶ τοῦ συγκεκραμένου τῷ αἷματι φυσικοῦ πνεύματος etc. See also *supra*, note 54.

⁵⁸ This has been discussed in detail by Meyerhof, *Von Alexandrien nach Bagdad*; *idem*, "Joannes Grammatikos (Philoponus) von Alexandrien und die arabische Medizin," *Mitteilungen des Deutschen Instituts für Ägyptische Altertumskunde in Kairo*, 2 (1931), 1-21, and Temkin, "Geschichte des Hippokratismus," 51 ff.

As Meyerhof, partly following Furlani, has shown, the Arabs caused great confusion regarding John Philoponus, whom they connected chronologically with the Arab conquest of Alexandria. Meyerhof believes that the entire medical literary activity ascribed by them to John Philoponus must be considered apocryphal. Franz Rosenthal, on the other hand, thinks that Ishāq b. Hunayn's *Ta'rib al-ātibbā'*, which he edited and translated in *Oriens*, 7 (1954), 55-80, actually is based on John Philoponus' *Ta'rib*, as claimed by Ishāq. I am at present inclined to believe that, all exaggeration and falsification notwithstanding, the tradition making John Philoponus a commentator of medical writings has a foundation in fact, though it remains to be seen just how far his activities in this direction went. As footnote 65 (*infra*) shows, John Philoponus certainly was acquainted with Galenic works.

where Greek medicine had been introduced through Alexandria.⁵⁹ Consequently, it is very difficult to determine exactly where Syrians and Arabs began to add their own. Where in Hunain's *Questions* do the Alexandrians end and Hunain begin?

Were the *Questions* or, if you like, their Latin paraphrase,⁶⁰ ever translated into Greek? I do not yet know. The whole problem of the translation of medical books from Latin, Syriac, and Arabic into Greek⁶¹ needs a much more thorough treatment than it has received so far. Our ignorance on this point is a serious hindrance to understanding Byzantine medicine in its later phase.

Commentaries play such a great role in the tradition of Byzantine medicine that they have had to be discussed, dull as they are and confusing as are the details, which I have simplified as far as I could. But our discussion should have enabled us now to approach a problem of wider significance that will close our consideration of Alexandria and at the same time introduce us to Constantinople.

In speaking of the Galenic system, we had in mind the physician Galen. Undoubtedly the school paid particular attention to his medical works. But what about the philosopher Galen? The question is all the more fascinating since Walzer pointed out the great role which Galen's philosophy played in Christian theology.⁶² Galen was accepted by orthodox Christianity and even highly admired by a heretical sect of Adoptionist tendencies which originated in Galen's lifetime and tried to rationalize Christianity in philosophical terms. "Thus some of them make a laborious study of Euclid, they admire Aristotle and Theophrastus, and some of them almost worship Galen."⁶³ Walzer is probably right in saying that this makes sense only in reference to the philosopher Galen. His philosophical works were still studied in the sixth century and exerted a great influence. Of the philosopher Marinus we hear that, being constitutionally unable to follow the sublime explanations of Plato's Parmenides by his teacher Proclus, he dragged the discussion down to the level of the "forms," "for the ideas of Firmus and of Galen attracted him more" etc.⁶⁴ Somewhat later, John Philoponus not only quotes Galen's work *On Demonstration*, but calls him "an excellent scientist" who "understands philosophical problems not less thoroughly than his special science."⁶⁵ Simplicius likewise

⁵⁹ What Richard Walzer "Filosofia islamica," *Le Civiltà dell'Oriente*, 3 (1958), 416, writes of ancient philosophy is equally true of medicine.

⁶⁰ The *Isagoge* of Joannicius printed in the various editions of the *Articella*, a medieval collection of basic medical texts.

⁶¹ See Aristote Kousis, "Quelques considérations sur les traductions des œuvres médicales orientales et principalement sur les deux manuscrits de la traduction d'un traité persan par Constantin Melitiniotis." *Πρακτικά τῆς Ἀκαδημίας Ἀθηνῶν*, 14 (1939), 205-220.

⁶² Richard Walzer, *Galen on Jews and Christians* (Oxford University Press, 1949), *passim*.

⁶³ Walzer, *Galen on Jews and Christians*, 77. The passage occurs in Eusebius, *Hist. Eccl.*, V, 28. To this should be added Galen's influence on ethics, traced in the Arabic tradition by R. Walzer and recently discussed by Roger Paret, "Notes bibliographiques sur quelques travaux récents consacrés aux premières traductions arabes d'œuvres grecques," *Byzantion*, 29-30 (1959-1960), 387-446, see 416ff. and 434ff. (See now R. Walzer, *Greek Into Arabic* [Cambridge, Mass., 1961]).

⁶⁴ Asmus, *Das Leben des Philosophen Isidorus*, 89. Photius, *Bibliotheca*, ed. I. Bekker (Berlin, 1824), 351 a, 33: ταῖς Φίρμου καὶ Γαληνοῦ τὸ πλέον ἐννοίαις ἐπισπόμενος.

⁶⁵ Joannes Philoponus, *De aeternitate mundi contra Proclum*, xvii, 5; ed. Hugo Rabe (Leipzig, 1899), 599f.: Γαληνός . . . ἀνὴρ φυσικώτατός τε καὶ οὐδὲν ἡπτον τῆς Ιδίας ἐπιστήμης τὰ κατά φιλοσοφίαν ἡκριβωκώς θεωρήματα . . . οὗτος οὖν ἐν τῷ δ' λόγῳ ἡς αὐτὸς συνέγραψεν ἀποδεικτικῆς πραγματείας φησιν . . .

speaks of him as "the most learned Galen" and the "admirable Galen" in passages which also refer to Galen's work *On Demonstration*.⁶⁶

Yet, when Hunain ibn Ishāq wanted to translate this work, he and his friends were unable to find a single complete Greek manuscript of it, in spite of a search that took them to Mesopotamia, Syria, Palestine, and Egypt.⁶⁷ Most of Galen's logical works have shared the same fate. This is all the more surprising as the understanding of Galen's system and of his scientific approach to medicine postulated a training in logic and methodology.

To understand the fate of the philosopher Galen, one must keep in mind that he was made up, so to speak, of two persons: the natural theologian, the author of *On the Use of Parts*, and, the methodologist and logician. It is not always obvious which of the two is meant when Galen is praised. *On the Use of Parts* was meant by Galen himself to be a philosophical, rather than a strictly medical, treatise. It demonstrates the absolute perfection with which the Creator, i.e. Nature, has shaped the human body and all its parts out of the available material. It was necessary only to identify the Demiurge with the one God to possess a work which on every page sang His praise. *On the Use of Parts* became a major source of information for all who dealt with the structure and function of the human body. In this work Galen often exhorts the reader to study the structure of a part by autopsy, words being insufficient to describe it.⁶⁸ Theophilus also repeatedly refers his readers to the anatomists who practice dissection.⁶⁹ Theophilus' words do not sound as if they were empty echoes of Galen's. It may not be impossible that in late Alexandria, as well as in Constantinople in the seventh century, animals were dissected as a demonstration of anatomical data, rather than to find anything new. Be that as it may, the existence of this book and its theological significance certainly helped to promote Galenism among Neoplatonists and Christians alike.

The situation is different regarding the methodologist and logician Galen. Whatever a few men thought of them, Galen's books on these topics were of doubtful value and dispensable. *On Demonstration* especially, as Müller's analysis shows, emphasized the value of reason and experience in medicine.

⁶⁶ Simplicius, *Comment. in Arist. Phys.* 218 b 21; ed. Diels (Berlin, 1882), 708: δ θαυμάσιος Γαληνός; in 219a 14-b 9; p. 718: δ πολυμαθέστατος ... Γαληνός. Iwan von Müller, *Ueber Galens Werk vom wissenschaftlichen Beweis* (Munich, 1895) (Abhandlungen der K. bayer. Akademie der Wiss. I. Cl. xx Bd., 2. Abth.), 60, 66, 68, cites the above remarks of John Philoponus and Simplicius in their full context.

⁶⁷ Bergsträsser, Hunain ibn Ishāq, p. 38f. See also I. von Müller, *op. cit.*, 3ff.

⁶⁸ William L. Straus, Jr. and Owsei Temkin, "Vesalius and the Problem of Variability," *Bull. Hist. Med.*, 14 (1943), 609-613. For Galen as a philosopher, see also Owsei Temkin, "Greek Medicine as Science and Craft," *Isis*, 44 (1953), 224f., and Walzer, *op. cit.*, 142 ff.

⁶⁹ Theophilus Protospatharius, *De corporis humani fabrica, libri V*, ed. G. A. Greenhill (Oxford, 1842), 123, 126f., 191, 202.

In this connection, Mr. Cyril Mango has kindly reminded me of Theophanes, *Chronographia*, ed. C. de Boor, I (Leipzig, 1883), 436, where he relates the torture of a certain Christianos. After his hands and feet had been cut off "the physicians convened and they cut him up, while alive, from pubes to thorax, in order to apprehend the structure of man." Afterwards he was burnt. A. Blanchet, "Contribution à l'histoire de l'anatomie," *Comptes rendus du deuxième congrès international d'histoire de la médecine, Paris, 1921* (Évreux, 1922), 235f., cites and translates the story and points out its importance. Remarks like that cited *infra* (note 84) from Theophilus, viz. that physicians examined the afflicted parts in insanity and amnesia, may possibly refer to similar incidences or to post mortem autopsies. Nowhere, however, is there an indication of the desire to learn new anatomical facts.

But, in the late Byzantine world, experience, apart from training and the superstitious reliance on remedies proved by experience only, no longer meant much. And Galen the logician was dispensable because the students could be expected to study Aristotle's *Organon*. Galen's very closeness to peripatetic philosophy favored his assimilation and set limits to it. Seen, one-sidedly perhaps, from the point of view of medicine, the university of Alexandria has little to do with Neoplatonism. The vague use of this term for philosophy after Plotinus is misleading. In Alexandria, a man could receive his formal philosophical training from the Aristotelian commentators and could then continue his medical education with the iatrosophists, some of whom conceivably had been his teachers before. Justinian closed the University of Athens in 529, but left Alexandria unmolested. Its medical curriculum had begun to resemble that of the later medieval universities; medicine was becoming scholastic.

The inference that we have drawn concerning the philosopher Galen explains the fate of his writings and the position assigned to him during the formative period of scholastic medicine. Throughout the Middle Ages there remained a latent tension between Aristotle and Galen. Moreover, though Galenism was the all-embracing medical system, minor or major revolts within this system did take place. One of them is documented by the "Controversy (*Antirrhētikos*) with Galen" of Simeon Seth, the contemporary of Psellus and physician of Michael Ducas. This short chapter, edited and translated by Daremberg,⁷⁰ has quite recently been analyzed by Dr. Magnus Schmid, who rightly characterizes it as an attack upon the logical inconsistency of Galen's treatise *On the Natural Faculties*, possibly motivated by Aristotelian tendencies, rather than a revolt against his biological thought.⁷¹ Simeon Seth, who accuses Galen of prolixity, feels obliged to refute passages of his works by demonstrative methods (μεθόδοις ἀποδεικτικαῖς). He obviously does not think highly of the followers of Galen to whom he addresses himself. "Perhaps," he says in conclusion, "by contradicting your words, I shall convert some of your followers, not to a different opinion but so as to prove that no man is infallible. For God alone always effects the good in the same fashion."⁷²

One cannot help asking who the "followers" of Galen were at a time when all physicians were Galenists. Simeon Seth obviously has a particular group in mind "by whom you would not be more pleased than I am," he tells Galen.⁷³ They are the people who consider Galen "as something divine."⁷⁴ This has a very similar ring to the reproaches heaped upon the Adoptionists of the third century,⁷⁵ the forerunners of the Byzantine Paulicians. But before rushing to the conclusion that we are dealing with a chapter in religious history, we must

⁷⁰ Ch. Daremberg, *Notices et extraits des manuscrits médicaux grecs, latins et français, des principales bibliothèques de l'Europe* (Paris, 1853), 44-47 and 229-233.

⁷¹ Magnus Schmid, "Eine Galen-Kontroverse des Simeon Seth," *XVII^e Congrès international d'histoire de la médecine*, I, 491-495 (Discussion, II, 123).

⁷² Daremberg, *op. cit.*, 47.

⁷³ Daremberg, *op. cit.*, 45: ἐδέησέ μοι τοῖς σοῖς προ[σ]διαλεχθῆναι δπαδοῖς, οῖς εἴπερ ἐώρακας, οὐκ ἐπ' αὐτοῖς εὐηρέστησας, δόσπερ οὐδ' ἔγω.

⁷⁴ Daremberg, *op. cit.*, 44: Πρὶν μὲν δμιλῆσαι Γαληνὲ τοῖς θεῖον τί σε χρῆμα λογιζομένοις.

⁷⁵ See *supra*, p. 106.

at least envisage another possibility. Simeon Seth was the great Orientalist of Byzantine medicine. A dietetic text which selected the best, not only from the Greek *materia medica* but also from Persian, Arabic, and Indian sources, is ascribed to him.⁷⁶ To this eclectic, an enthusiastic limitation to Galen may have looked like one-sidedness, which he detested: Galen was not the only one who could effect the good.

IV

Though Christianity was not a conspicuous feature of Alexandrian medicine, in the Constantinopolitan era it became a constitutive element. The Christian tradition in medicine went back to the Greek Fathers of the Church, as is amply borne out by Frings's recent publication.⁷⁷ Medicine entered into such theological disputes as the argumentation against the Manichaeans: the evil that exists in animals and plants can be utilized by man, who has reason and medicine to help him.⁷⁸

The ancient medical tradition did not always fit smoothly into the Christian civilization. In the tenth century Theophanes Nonnus, upon the command of Constantinus Porphyrogenitus, composed a synopsis in the form of an epitome of the medical art, from which I cite the beginning of the chapter on epilepsy:

Epilepsy is a convulsion of the whole body together with a damaging of the governing functions. Sometimes the cause is situated in the brain itself, sometimes in all its ventricles, blocking the passages of the psychic pneuma, so that people fall and froth. This laymen (οἱ Ἰδιῶται) call "a demon." The ventricles are blocked by phlegm or melancholic humor. Sometimes the disease also originates because of sympathy with the mouth of the stomach. Sometimes auras ascend from another part, such as the hand or foot, to the brain, and people fall down.⁷⁹

There is a considerable amount of superstitious belief in this chapter, but those superstitions relate to remarkable curative powers of various substances, etc., not to anything supernatural. The demoniac notion of epilepsy is simply attributed to laymen. This is just the kind of situation to which Psellus refers in his *Dialogue on the Operation of Demons*, when he had the monk Marcus tell about possession by subterranean demons:

"But Marcus," said I, "physicians persuade us to be of another way of thinking, for they assert that such affections are not produced by demons, but are occasioned by an excess or deficiency of humors, or by a disordered state of the animal spirits, and accordingly they endeavor to cure them by medicine or dietetical regimen, not by incantations or purifications." Marcus replied: "It is

⁷⁶ *Syntagma de alimentorum facultatibus, prooemium*, ed. B. Langkavel (Leipzig, 1868), 1. I am not concerned here with the interdependence of Simeon Seth and Psellus (see Bloch, "Byzantinische Medizin," 562 and 563), which can hardly be decided before both authors are better known in their medical relationship. Simeon Seth's orientalistic knowledge is assured apart from the *Syntagma*.

⁷⁷ Herman Josef Frings, *Medizin und Arzt bei den griechischen Kirchenvätern bis Chrysostomos* (Diss. Bonn, 1959).

⁷⁸ *Ibid.*, 8.

⁷⁹ Theophanes Nonnus, *Epitome de curatione morborum*, chap. 36; rec. I. S. Bernard, I (Gotha-Amsterdam, 1794), 144f.

not at all surprising if physicians make such an assertion, for they understand nothing but what is perceived by the senses, their whole attention being devoted to the body.”⁸⁰

Conflicts could arise also where the Scriptures and the teaching of medical science disagreed. For this I would like to cite Theophilus Protospatharius who is usually placed in the seventh century. There is no absolute certainty about this date, nor about the identities of all the medical authors of the time who bore the name Theophilus, though I see no cogent reason to differentiate between the writer of books on the pulse, urine, and faeces, the commentator on the Hippocratic Aphorisms, and the author of a work on the Fabric of the Human Body. Theophilus also stands fully in the tradition of antiquity: his book on urine builds on his Alexandrian predecessor⁸¹ and his commentary on the Aphorisms⁸² does not diverge substantially from that of others. Yet references to the deity which occur here and there leave no doubt that he was a Christian.⁸³ His book on the human body is an anatomical text frequently quoting Hippocrates, largely dependent on Galen, but also intent on glorifying God. The difficulty arises when Theophilus bears witness to the Galenic, i.e. medical, belief that the brain is the seat of the principal part of the soul:

I cannot tell the why or how of Homer's saying that the principal part of the soul is in the heart. He is followed by most of the Hellenes, nay even by Divine Scripture, for it says: “Wherefore do arguments arise in your hearts?” Indeed, the physicians examining the loss of reason and of memory, and the afflicted part from which it arises, have found nothing but the brain. Therefore, they apply things fitting for therapy: salves, vapor baths, and other remedies, to the head, not to the heart.⁸⁴

The step from Theophilus to Meletius, the next author of a work On the Fabric of Man, takes us to a different intellectual climate. Unfortunately, the dating of Meletius is even more uncertain than that of Theophilus. Meletius is often cited in medical literature; so a knowledge of his biography would provide an anchoring point for further chronological orientation. Meletius' book is put together from Galenic and pseudo-Galenic works, from the Bishop Nemesius of the fourth century, from Gregory of Nyssa, Gregory Nazianzen, and Basil the Great.⁸⁵ Meletius states that many of the ancient sages and physicians have dealt with man's body and soul. “Regarding the body, their endeavors are known and admitted by all men who are willing to learn and who show industry, and they have been observed to be facts. However, what the Greeks philosophized about the soul has been proved vain. For they were not able to ascertain anything true about its essence or to show what it is by nature.”⁸⁶ These are just the sentiments we would expect from a monk whose book has

⁸⁰ *Psellus' Dialogue on the Operation of Daemons*, Eng. transl. by Marcus Collisson (Sydney, 1843), 35.

⁸¹ Theophilus, “De urinis” in I. L. Ideler, *Physici et medici graeci minores*, I (Berlin, 1841), 261.

⁸² Dietz, *Scholia*, II, 236–544, has published the commentary of Theophilus together with that of Stephanus and extracts from others.

⁸³ For instance, the end of “De urinis,” *op. cit.*, 283.

⁸⁴ Theophilus, *De corporis humani fabrica*, IV, 31; 184, 15.

⁸⁵ The sources have been analyzed by Helmreich, *Handschriftliche Studien zu Meletius*, 56–62.

⁸⁶ Meletius, Περὶ τῆς τοῦ ἀνθρώπου κατασκευῆς, ed. J. A. Cramer, *Anecdota Graeca*, III (Oxford, 1836), 5.

such a strongly teleological and even theological flavor that it has, undeservedly, received relatively little attention from medical historians. While Theophilus was a high dignitary at court, Meletius was a monk in the monastery of the holy Trinity in Asia Minor.⁸⁷ His name also occurs in manuscripts as a commentator on Hippocrates;⁸⁸ this would not be surprising in a monk who could be credited with book learning. But, apart from telling us where he comes from, Meletius gives us also considerable information about himself and the state of the profession. In an appended treatise *On the Soul*, Meletius speaks about individuality. This is defined as composed of peculiarities the sum of which is not to be found in anybody else. "And well is it said 'in nobody else.' For the peculiarities of Meletius, since he is an individual, cannot be perceived in anybody else: such as being a Byzantine, a physician, short, blue-eyed, snub-nosed, suffering from gout, having such and such a scar on the forehead, being the son of Gregory. For all these things assembled have constituted my friend Meletius; they cannot be perceived in anybody else."⁸⁹

Then follows a definition of a person, and again Meletius illustrates: "for instance, my friend Meletius when, standing, he reads or bleeds or cauterizes somebody, proves himself separated from the rest of the brethren."⁹⁰

Monk, physician, and surgeon: this combination must be seen against the background of Christianity, medical learning, and empiricism.

In the early Middle Ages of the Latin West, the monasteries and cathedral schools became the places where medicine as a science and art found a modest refuge. There followed the lay school of Salerno and then the medical faculty of the medieval University. In the realm of Constantinople, too, monasteries and ecclesiastical schools seem to have been the main teaching centers of medicine,⁹¹ but on a scale and with a spirit of learning that surpassed the West before the thirteenth century. This, perhaps, is not surprising, since available here was the ancient literature which the West had to acquire by a slow process of translation. But in another direction also Byzantium was surpassing the West: the development of the hospital and its role in the medical care of the sick.

Hospitals all through the Middle Ages fulfilled a broad function of housing persons needing shelter and care. The foundation of the first Christian hospital is ascribed to Basil the Great.⁹² The *Basilias* in Caesarea, established in the seventies of the fourth century, became renowned; there nurses and medical attendants were available, as well as animals to carry burdens, and escorts.⁹³

⁸⁷ *Ibid.*, 1: παρὰ Μελετίου μοναχοῦ θέματος τοῦ Ὀψικίου, βάνδου Ἀκροκοῦ, χωρίου Τιβεριουπόλεως, μονῆς λεγομένης Τρεῖς, ἥτοι τῆς ἁγίας Τριάδος.

⁸⁸ See H. Diels *Die Handschriften der antiken Aerzte*, II (Berlin, Akademie der Wissenschaften, 1906), 63.

⁸⁹ Meletius, ed. Cramer, 154, 32-155, 5.

⁹⁰ *Ibid.* 155, 10-12.

⁹¹ Friedrich Fuchs, *Die höheren Schulen von Konstantinopel im Mittelalter* (Leipzig-Berlin, 1926) (Byzantinisches Archiv, Heft 8), must be consulted throughout.

⁹² For the following, see: Karl Sudhoff, "Aus der Geschichte des Krankenhauswesens im früheren Mittelalter in Morgenland und Abendland," reprinted in *Sudhoff's Arch. Gesch. Med.*, 21 (1929), 164-203; E. Jeanselme et L. Oeconomos, "Les œuvres d'assistance et les hôpitaux Byzantins au siècle des Comnènes," *1^{er} Congrès de l'histoire de l'art de guérir, Anvers, 1920* (Antwerp, 1921), 239-256. The whole development of Byzantine hospitals has now been reviewed thoroughly by A. Philipsborn, "Der Fortschritt in der Entwicklung des byzantinischen Krankenhauswesens," *BZ*, 54 (1961), 338-365. This article became available to me only after my MS had gone to press.

Constantinople also had its hospitals, and Justinian engaged in building them.⁹⁴ Anna Comnena describes the so-called orphanage, the wonderful foundation of her father Alexius.⁹⁵ But from a medical point of view all these hospitals were overshadowed by the hospital founded by Irene, the wife of John Comnenus in 1136. Attached to the monastery of the Pantocrator, it had 50 beds for the sick: 10 for surgical cases, 8 for acute and severe diseases, 20 for common diseases, and 12 for women. Each of the divisions had two physicians—which makes sense only if we assume limited hours of duty and multiple occupancy of each bed. There was an outpatient department, and lower medical personnel. The physicians of the hospital also took care of the sick brethren in the monastery of the Pantocrator.⁹⁶

The mention of escorts by Basil the Great has led to an identification of these persons with the so-called *parabalani* or *parabolani* or *parabalani* found in the law codes, and this, in turn, has led to some unsupported views about them. Supposedly, they were the reckless persons who did not mind exposing themselves to plague or leprosy when searching in the city for the sick, to bring them to the hospital.⁹⁷ The one-sided connection of the *parabalani* with hospitals appears to me a doubtful interpretation. The indubitable fact of their holding an office connected with the care of the sick (*qui ad curanda debilium aegra corpora deputantur*),⁹⁸ and the experience in healing required of them,⁹⁹ seem to indicate their function: they formed a lower class of medical personnel in contrast to the physicians.¹⁰⁰ The law insisted that they be selected from among guildsmen and put them under the control of the Church. Regardless of whether they also formed a religious group, or were otherwise employed by the patriarch, I share the view that they functioned similarly to the *dipotatoi* or *despotatoi* in the Byzantine army,¹⁰¹ an ambulance corps whose duty it was to collect the wounded or incapacitated and give them aid.

An incident that took place during the wars of Alexius may here be cited: George Palaeologus had been wounded in the head by an arrow. He summoned

⁹³ Sudhoff, *op. cit.*, 167: τοὺς νοσοκομοῦντας, τοὺς ἰατρεύοντας, τὰ νωτοφόρα, τοὺς παραπέμποντας.

⁹⁴ Procopius, *Buildings* (Loeb Classical Library, 1940), *passim*.

⁹⁵ Anna Comnena, *Alexias*, XV, 7.

⁹⁶ Sudhoff, *op. cit.*, 174f. E. Jeanselme et L. Oeconomos, "Les œuvres d'assistance et les hôpitaux Byzantins au siècle des Comnènes," 247. Pan S. Codellas, "The Pantocrator, the Imperial Byzantine Medical Center of XIIth Century A.D. in Constantinople," *Bull. Hist. Med.*, 12 (1942), 392-410. See also Philipsborn, "Der Fortschritt . . .," *ibid.*, 354-355 who (355, note 21) refers to G. Schreiber, "Byzantinisches und abendländisches Hospital" in *Gemeinschaften des Mittelalters* (Münster, 1948) (not available to me), as giving "die beste Darstellung mit Kommentar."

⁹⁷ C. F. Heusinger, "Die Parabalanan oder Parapemponten der alten Xenodochien," *Janus*, 2 (1847), 500-525 is basic for the view connecting hospitals and Parabalani and is still referred to by Sudhoff, "Aus der Geschichte des Krankenhauswesens," 177, and by Alexandre Philipsborn, "La compagnie d'ambulanciers 'Parabalani' d'Alexandrie," *Byzantion*, 20 (1950), 185-190.

⁹⁸ *Cod. Justinianus* 1, 3, 18, and *Cod. Theod.* 16, 2, 43.

⁹⁹ *Cod. Just.* 1, 3, 18: *qui pro consuetudine curandi gerunt experientiam*.

¹⁰⁰ I seem to be in agreement with the views expressed by H. Grégoire in *Byzantion*, 13 (1938), 283. Philipsborn's remark, *Byzantion*, 185, that *curare* may have a broader meaning than "to treat" does not prove that the broad meaning was intended here.

¹⁰¹ The parallel between the two bodies was noticed but not heeded by Heusinger *op. cit.*, 507. See also Philipsborn, *Byzantion*, 189.

"one of the empirics" who were in the army.¹⁰² This man, however, was not able to extract the arrow; so the shaft was cut off and the head bandaged, and fighting continued. The story does not resound to the credit of these "empirics" in the army, but it would agree with the character of *parabalani* and *dipotatoi*.

A matter of anatomical terminology leads us further into the empirical aspect of Byzantine medicine. We still use the terms cephalic vein and basilic vein for two veins situated in the bend of the elbow. In Arabic and Latin writings we can trace the term cephalic vein as far back as the ninth century, and the synonym "cranial vein" occurs in Meletius.¹⁰³ The terms have not been found in classical Greek authors, and where they occur later, in Greek, Latin, and Arabic works, they are, at first at least, always mentioned in connection with phlebotomy. I believe them to be of Greek provenience, and to stem from the language of everyday practice.¹⁰⁴

This practice, in contrast to the works of the ancients and the commentaries on them, and to the more literary products of Byzantine medical authors, has left many traces. Greek medical manuscripts are replete with shorter or longer texts, badly composed, badly marked as to beginning or end, and often transmitted anonymously or under pseudonyms. These writings range from phlebotomy, diagnosis from blood, urine, faeces, medical astrology, brief dietetic rules, to recipes and their collection in so-called *iatrosophia*. The *iatrosophion* is a handbook listing diseases and the remedies appropriate to them. The most outstanding is ascribed to John Archiatrus¹⁰⁵ about whom we know nothing.¹⁰⁶ We encounter this work in many manuscripts,¹⁰⁷ usually in such disarray that one cannot help feeling deep sympathy with its future critical editor. This and other *iatrosophia* may have been in special demand at the hospitals,¹⁰⁸ and additions or interpolations were made as experience dictated.

In speaking of this literature of everyday practice, I do not mean to convey the idea that its authors were necessarily uneducated men. Such a division does not seem feasible to me. Works on urine, for instance, were composed by Theophilus as well as John Actuarius. The latter's composition comprised no fewer than seven books. It is the emphasis on quick orientation and application, rather than on theory, that defines this literature. The impossibility of excluding recognized authorities from authorship reflects the impossibility of drawing a sharp line between the medically interested philosopher and the professional medical man.

¹⁰² Anna Comnena, *Alexias* IV, 4: ed. A. Reifferscheid, I (Leipzig, 1884), 138, 26: μετακαλεσάμενός τινα τῶν ἐμπείρων. I cannot agree with Georgina Buckler, *Anna Comnena* (Oxford University Press, 1929), 148, who refers to this passage as signifying "doctors in the specialized sense which corresponds with our word 'empiric,'" apparently giving the latter term a meaning of commendation.

¹⁰³ Meletius, *op. cit.*, 119f: ἡ ὥμισια, ἦν καὶ κρανιακὴν λέγομεν ἡ μέση τε, καὶ ἡ ἔσω τὴν μὲν οὖν μέσην καθόλου καλοῦμεν, ὡσπερ τὴν ἔσω σπληνικήν.

¹⁰⁴ Owsei Temkin, "The Byzantine Origin of the Names for the Basilic and Cephalic Veins," *XVII^e Congrès international d'histoire de la médecine*, I, 336-340.

¹⁰⁵ Daremberg, *Notices et extraits*, 22 ff.

¹⁰⁶ Aristoteles Kouses, in 'Ἐπετηρίς Ἐταιρείας Βυζαντινῶν Σπουδῶν', 6 (1929), 379 ff., tries to identify him with another unknown author named Ioannes.

¹⁰⁷ Diels, *Die Handschriften der antiken Aerzte*, II, 52.

¹⁰⁸ Daremberg, *Notices et extraits*, 22 ff.

Agapius, one of the philosophers in Alexandria who resisted the Emperor Zeno, as well as an "iatrosophist," went to Constantinople where he founded a school and amassed a fortune.¹⁰⁹ Psellus, the most outstanding Byzantine scholar, also wrote medical treatises on diet. Nicephorus Blemmydes' education had reached the study of philosophy when he turned his back upon it and for seven years cultivated medicine "logically and practically,"¹¹⁰ having been bred to this art which was his father's profession.

This is by no means an exhaustive list.¹¹¹ The question as to how persons became physicians who did not learn medicine as a craft from their father or, presumably, a master, needs further elucidation.¹¹² There may not be a general formula for the answer to the problem, which is not restricted to Byzantium. Hospitals may have played a role here, as the mārastān did in Arabic medicine. John Actuarius studied philosophy with Planudes when he was urged to remain in Constantinople, where he could also further his education at the hospital.¹¹³

Seen from a modern point of view, the practical medical literature of the Constantinopolitan phase, much like that of the western Middle Ages, seems the least interesting, with the exception of its pharmacological part. Anatomy, physiology, and pathology we may criticize but will understand. Yet it is difficult to understand how people could rely on a lore which to us lacks a basis in reality. Even if we admit that urinoscopy and similar predecessors of "laboratory medicine"¹¹⁴ contained here and there a valuable observation and that bleeding may have helped in some cases, the bulk of such observations and practices, let alone the downright superstitions, is hard to appreciate. We must conclude that life creates a need for managing human affairs regardless of whether or not they can truly be managed by the means at hand.

Byzantine medicine reached its climax with John Actuarius, about a hundred years before the fall of Constantinople. With him, the practice of writing synopses and abridgements is reversed: full-length books appear from his pen. John Actuarius knows that he has something to say. Yet I hesitate to include him in my discussion. He lived at a time when the West had produced its great figures of scholastic medicine and when the influence of the West would have to be taken into account. As far as I know, even the necessary philological preparation for such a task has not yet been made.

¹⁰⁹ Asmus, *Das Leben des Philosophen Isidorus*, 115.

¹¹⁰ Nicephorus Blemmydes, *Curriculum vitae et Carmina*, ed. Aug. Heisenberg (Leipzig, 1896), 3 (see also pp. lxxxiv and lxxxviii f.): ἀμα καὶ ἰστρικῆς ἐπιμελόμενος λογικῶς τε καὶ πρακτικῶς πατρική γάρ ἀσκησις ἡ τέχνη καμοὶ σύντροφος ὅχρις ἐπῶν ἐπτὰ περατώσεως.

¹¹¹ Fuchs, *Die höheren Schulen von Konstantinopel im Mittelalter*, mentions a considerable number of names, esp. pp. 5, 6, 62, 72, and *passim*.

¹¹² This question should be examined in connection with the history of the organization of the Byzantine medical profession. As far as I can see, for such a history we possess at present scattered references only.

¹¹³ Fuchs, *op. cit.*, 61. According to Philipsborn, "Der Fortschritt . . .," *ibid.*, 355, the Pantokrator contained the first place for the instruction of physicians outside of the universities (as part of philosophy) and the school of the Patriarch.

¹¹⁴ I adopt this designation of modern medicine from Erwin H. Ackerknecht, *A Short History of Medicine* (New York, 1955), 157.

Instead, we shall use as a summary of Byzantine medicine its reflection in the *Timarion*, the anonymous satire of the twelfth century.¹¹⁵ Timarion is severely ill, his liver is affected, he has lost much bile. Two demons appear and drag his soul to Hades. "This is the man," they say, "who has lost the fourth of his component elements, and he cannot be allowed to continue to live on the strength of the remaining three; because a sentence of Asclepius and Hippocrates has been written out and posted up in Hades, to the effect that no man may live when one of his four elements is wanting, even though his body may be in good condition."¹¹⁶

Poor Timarion, in Hades, has to face the tribunal which benefits from the expertness of great doctors. But his counsel for the defense is optimistic: Asclepius, since his deification, rarely attends the meetings, Hippocrates mumbles dubious aphorisms, Erasistratus is an ignoramus anyhow, and "the god-like Galen" whom the counsel "respects more than the others"¹¹⁷ has been granted leave of absence. He is pondering some omissions in his work on fevers and believes that the additions may become longer than the whole work.

Timarion presupposes a remarkable knowledge of medical literature on the part of its readers. Acquaintance with the Hippocratic aphorisms is needed for an appreciation of Hippocrates' peculiar behavior. The reader who has not heard of Erasistratus' famous diagnosis of a case of love sickness¹¹⁸ will not understand the reference to his bragging to everybody about it. The joke about Galen's contemplating the publication of revisions which would be even bigger than his original book implies a familiarity with Galen's verbose style. *Timarion* is a satire for intellectuals, which Molière's comedies about physicians were not, and there is another point where such a comparison falls short: the author of *Timarion* calls Galen "god-like" and does not deny his respect for the great medical authority of the time.¹¹⁹ Finally, Timarion is saved; the experts find that he has lost the secreted bile which is not identical with the constitutive element—a fine enough point which, however, enables the doctors to reconcile their theory with reality. *Timarion* does not step out of the Byzantine world; the satire mocks, but accepts, the traditions and practices of Byzantine medicine.¹²⁰

JOHNS HOPKINS UNIVERSITY

Baltimore

¹¹⁵ Adolph Ellissen, *Timarion's und Mazari's Fahrten in den Hades* (Leipzig, 1860) (Analekten der mittel- und neugriechischen Literatur, 4).

¹¹⁶ *Timarion*, 13; p. 56. The translation of the above passage is from H. F. Tozer, "Byzantine Satire," *Journal of Hellenic Studies*, II (1881), 247.

¹¹⁷ *Timarion*, 29; 72: "Ο γε μήν δαιμόνιος Γαληνὸς δινέγώ μᾶλλον τῶν δλλων δεδίττομαι.

¹¹⁸ Galen, *Opera*, ed. Kühn, XIV (Leipzig, 1827), 630 ff., and Plutarch's life of *Demetrius*, chap. 38. R. Walzer, "Fragmentsa graeca in litteris arabicis I. Palladios and Aristotle," *The Journal of the Royal Asiatic Society* (1939), 412, note 6, emphasizes the role of this story in the Greek and Oriental tradition.

¹¹⁹ See *supra*, note 117.

¹²⁰ Some of the material utilized in this article was gathered with the support of a grant from the American Philosophical Society.